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THE BIRTH AND GROWTH OF THE PATENT OFFICE.¹

By GEORGE W. EVANS.

(Read before the Society, May 21, 1918.)

The Honorable Secretary of the Interior, Franklin K. Lane, in an address before the Liberty Loan Committee of the Department of the Interior, on April 8, 1918, referring to several bureaus of that Department, said, among many other interesting things, that:

"The Department of the Interior is not as active in the War as some of the other Departments, but there is not a single bureau therein that is not doing actual war work, aside from boosting Liberty Loans, aside from your Red Cross contributions, and aside from intensive war work among the women. These things are on the side; but if you will think over the past year you will realize that the Department itself, in every bureau, is contributing in real fashion to the success that we are going to have in the end.

"Through the General Land Office we have made it possible by legislation that we have advocated, and that has gone through Congress, for the men who are on our homesteads to leave them and go into more active war work, or go into the trenches themselves. They to retain in fee simple their homesteads.

"The great work that the Bureau of Mines has been carry-

¹ The paper herewith submitted concerns the birth and growth of the United States Patent Office. It has been prepared by me after a careful and complete research of the records and files of the Department of the Interior, and the Patent Office Bureau. Also from the files of the *Washington National Intelligencer*, the semi-official newspaper of the general government, in the early period of the last century, said files now forming a part of the valuable historical collection in the archives of the Library of Congress.

ing on you are all familiar with. It is as complete and as perfect as any industrial system in the United States, and out of it will come some real things that will have their effect in the war itself. A contract has been signed for the farming of 100,000 acres of Indian lands, which one man is to take over and put into wheat for war uses.

"The Geological Survey is working throughout the country searching for the minerals that we need to make this a self-sufficient country, looking for the potash, and the nitrates, hunting out those finer, those rarer minerals that we have neglected in the past.

"The Patent Office has a bureau organization under which they are sifting out the inventions of the past twenty years to find what there may be there that our great minds have developed, that have not been properly appreciated and appropriated to war work."

The Patent Office, so often facetiously referred to as "that Constitutional Bureau," because of the provision of the Constitution under which it is established and upon which all laws affecting it are based, is probably the only bureau of the Government so established. The first provision relating thereto provides:

"That Congress shall have the power . . . to promote the progress of Science and Useful Arts by securing for limited Times to authors and Inventors the exclusive Right to their respective Writings and Discoveries."

The patent system had its origin in England and grew out of the practice of granting monopolies by the crown. These were mostly granted through pure favoritism and as rewards for services to the State. It was not until 1623, in the reign of James I, that an act was passed putting a stop to the abuse of this kingly prerogative, and this act provided that letters patent should be granted only for

"The sole working or making of any manner of new manufactures within the realm to the true and first inventor.

The United States Patent Office had its beginning under a commission composed of the Secretary of State, the Secretary of War and the Attorney General, Act of April 10, 1790. Applications for patents were discussed in cabinet meeting and but three patents were granted by this commission, each being signed by President George Washington. This commission operated under the act of 1790, the first of the patent acts, and this embodied the best features of the systems of Europe, although English theories were more specifically considered. This law limited the life of a patent to fourteen years, and there was no provision for an extension. It required that a written specification be filed with the Secretary of State, containing a description of the article desired to be patented, accompanied with draft or model and explanations and models. It also required that the specifications should be so particular and the models so exact as not only to distinguish the inventions or discovery from other things before known and used, but also to enable a workman or other person skilled in the art of manufacture whereof it is a branch, or whereunto it may be nearest connected, to make, construct or use the same, to the end that the public may have the full benefit thereof after the expiration of the patent term. The Secretary of State was also directed to furnish copies of any specification and to permit any model to be copied on application. Provision was made for the repeal of any patent obtained surreptitiously or by false suggestion, but no remedy was given for interfering applications. The law was very defective, as are nearly all initial measures, but was the starting

point of our patent system, and it has, therefore, been necessary to mention it as some length.

The tribunal of three which controlled the examination and granting of patents under this act of 1790 was absolute in its authority and there was no appeal from its decisions. The severity of its scrutiny and the strictness with which it exercised its power caused great dissatisfaction, and inventors complained that the three officers composing the board were not in sympathy with those whom the law under which they acted was designed to benefit; that, on the contrary, they were by education and interest hostile to the industrial classes.

Consequently in 1793 another act was passed which destroyed this power of revision and rejection which the first tribunal had so rigidly enforced. The general construction of this act was much the same as that of 1790, except that there was no power of rejection, and that to the Secretary of State alone was given authority to grant patents.

For twelve years, from 1790 to 1802, the entire work of the Patent Office was performed by a single clerk in the State Department and all the records did not fill over a dozen pigeonholes. No organization of a Patent Bureau occurred until May, 1802, when President Jefferson appointed Doctor William Thornton, a scientist and friend of George Washington, to have charge of the issuance of Patents. For twenty-six years Dr. Thornton exercised an autocratic control of the affairs of the Patent Office.

He used his powers of discretion to an extent that would undoubtedly be much condemned at the present state of our national progress. From such inventors as could afford to pay, he exacted the government fees, but when he found that the inventor was poor in pocket,

he remitted the fees, boldly asserting that "the patent law was made solely for the encouragement of authors and inventors, and not to collect revenue."

Although upon his death an investigation of his office showed a decided deficit between the amount which actually was, and that which should have been to the credit of the office in the Treasury, there does not appear to have been any suspicion of personal dishonesty on the part of Dr. Thornton, but was merely chargeable to his generosity and leniency toward the inventors. He took great interest in the office, making it practically his life work. His salary was \$1,400, nowadays considered as a moderate-sized clerk's salary, but undoubtedly a large one in those days. His single clerk drew \$500 per year, and his messenger was on the payroll for \$72 annually. This was his office force. Dr. William Thornton continued in office until the date of his death in 1828.

The growth of the Patent Office in the succeeding 100 years is best illustrated by comparison of these figures with those existing at present, when the office itself occupies a whole city block, employs 1,000 individuals and has annual receipts amounting to over, approximately, \$2,500,000. The amount on the books of the Treasury, January 1, 1918, credited as "Patent Office Receipts," was \$8,223,883.45.

Of Dr. Thornton a story is told that during the war of 1812, when the British captured the city of Washington and destroyed the Capitol Building, a loaded cannon was trained upon the Patent Office for the purpose of destroying it, and he is said to have put himself before the gun and in a frenzy of excitement explained:

"Are you Englishmen or only Goths and Vandals? This is the Patent Office, a depository of the ingenuity of the Amer-

ican nation, in which the whole of the civilized world is interested. Would you destroy it? If so, fire away, and let the charge pass through my body."

The effect is said to have been magical and to have saved the Patent Office from destruction.

Whether this is true or not, I have thought it best to give Doctor Thornton's statement notice as he published it at that time. From the *National Intelligencer*, of Washington, D. C. (semi-official government organ), dated September 7, 1814, appears a communication addressed to the public as follows:

"CITY OF WASHINGTON, 30th August, 1814.

"To the Public:

"Hearing of several misrepresentations, I think it my duty to state to you in as concise a manner as the various circumstances will permit, my conduct in the late transactions in this city.

"After securing all the public papers committed to my care, and sending them to a place of perfect safety, (leaving my own property unattended to,) I proceeded on the 23d instant to the neighborhood of the Army, and afterwards accompanied the Honorable, the Secretary of State, Colonel Monroe, with some other gentlemen in reconnoitering the country, when we only returned at twelve o'clock at night.

"The next day I removed with my family in the retreating army from the city, and beheld in deep regret, that night, the tremendous conflagrations of our public buildings, etc. Hearing next morning while at breakfast in Georgetown, that the British were preparing to burn the War Office and the public building containing the models of the Arts. I was desirous not only of saving an instrument that had cost me great labor, but of preserving, if possible, the building and all the models. I therefore left my breakfast and hastened forward, determining to request the first known democrat I should meet, to

accompany me, lest the malevolent should insinuate that I had in any manner held an improper communication with the invaders of the country. I met with Charles Carroll, Esquire, one of the most respectable gentlemen in the District, and I begged him to accompany me for the reason given; he very politely attended me.

“We arrived at the very moment when the English, Colonel Jones and his men, were proceeding to burn the War Office. Mr. Carroll had already accompanied the Mayor of Georgetown in a peace deputation and was therefore known to some of the officers; he informed Colonel Jones that I had waited on him to request permission to take out of the Patent Office a musical instrument; the Colonel immediately replied, that as it was not their intention to destroy any private property, I was perfectly at liberty to take it. After the War Office was burnt, I entreated Mr. Carroll to accompany me to the Patent Office, but he proceeded only to my house and told me he must return. He did so, and I went to the residence of the Mayor to ask him to accompany me to the building, but he was out of town. I next called on Mr. Nicholson, my model maker and messenger, and desired him to attend me; he did, and the British soldiers were then marching in two columns to burn the building. When we arrived there we found the Reverend Mr. Brown, Mr. Lyon and Mr. Hatfield near the Patent Office. Major Waters, who was then on guard and waiting the command of Colonel Jones, informed me that the private property might be taken out; I told him that there was nothing but private property of any consequence, and that any public property to which he objected might be burnt in the street, provided the building might be preserved, which contained hundreds of models of the arts, and that it would be impossible to remove them, and to burn what would be useful to all mankind, would be as barbarous as formerly to burn the Alexandrian Library, for which the Turks have since been condemned by all enlightened nations.

“Major Waters desired me to go again with him to Colonel Jones, who was attending some of his men engaged in destroying Mr. Gales printing office. I went to Penn Avenue and Sev-

enth Street, and was kindly received by the Colonel. They took their men away and promised to spare the building. I then returned, satisfied, without seeing any other British Officer, and went out of the District with my family. On Friday, the twenty-sixth, I returned to the city lest any inferior officer, not knowing of this promise, should set fire to the building; but I found the British were gone, except a few sick and wounded men and their attendants.

“Finding the Mayor not yet in the city, I, as the only Justice of the Peace, appointed a guard at the President’s House and Offices, another at the Capitol to prevent plunderers who were carrying off all articles to the amount of thousands of dollars. When at the Capitol I was informed that a dreadful scene of plunder was exhibited at the Navy Yard. I went and ordered the gates to be shut and stopped every plunderer. While placing a guard there, Commodore Tingéy arrived. I delivered everything up to him; and on returning was told the English sick and wounded were in want, and had no provision. I visited them and was informed by Sergeant Sinclair, of the British 21st regiment, who had the command of these men, that Doctor James Ewell had, in a most humane manner, attended them as a physician, and as far as he could, had supplied them with necessaries. Major L’Enfant, with great humanity, besides being useful in some precautionary measures, desired I would have carts sent for some of our wounded men on the commons. I understood he had engaged one, and I desired he would send as many as he thought necessary, for which I would be answerable. I have heard since they had been removed. I then waited on Doctor James Ewell, to thank him in the name of the city for his goodness towards the distressed, who, being in our power, and especially in misery were no longer enemies. He told me there was no provision for them of any kind. I appointed a Commissary, and ordered everything that the Doctor thought requisite, for which I would be responsible. The Sergeant requested my protection for all his men. I told him they would be protected, and as our people would patrol the streets in squads of six, at least, in every ward, and might meet some of them, it would be well

to send a man with each of our patrols as a guard to challenge them; and thereby prevent our people from firing on them; and if any should be found, to take them to the Sergeant, who would put them under guard for further orders. He promised to obey every order. I gave orders and he fulfilled them. Some stragglers, I understand, were taken up, and perfect order kept throughout the city.

“After I had made all the arrangements, the Mayor arrived. I informed him of all I had done, and stated that I then delivered over to him all the authority I had, from the duty of office, assumed. He, I believe, and my fellow citizens of Washington, approved of my conduct. I returned late to my family in the country. The next morning we returned to the city when we heard the British ships bombarding Fort Warburton. On the 28th instant, I learned that the people being afraid of the landing of the British seamen, who they thought were immediately bound for the city. I had desired the Mayor to wait on the President, and request permission to send a deputation—not to enter into capitulation of any kind, but to represent to the Commander of the British squadron, that it was understood, when their army destroyed the public buildings and property, no other would be molested, and to request, therefore, they would not permit their soldiers to land; but learning at the same time that the President had refused to hear of a deputation, and understanding that the people on all sides deprecated a mere show of resistance; for it was supposed our men had not generally returned, and that the few who had returned were all dispersed, I went immediately to the President, who was attended by the Secretary of State and the Attorney General, and gave my views of the situation. I represented the general feelings of the people on the above supposition, but was answered, it would be dishonorable to send any deputation, and that we would defend the city to the very last; that our men had returned, and we would have sufficient force, if called together, and I was desired to aid in rousing them to arms.

“I obeyed the call, returned, rode in all directions and called to arms. I sent for the troops from Bladensburg, and urged

them from various places. I sent to the different quarters, and gave, so far as I could, every assistance in my power to fulfill the wishes of the government.

“Respectfully,
“WILLIAM THORNTON.”

From Doctor Thornton's time up to the present, the history of the Patent Office has been one of steady growth. Two disastrous fires somewhat impeded its progress on account of the destruction of records that could not be replaced.

Although the original laws were taken from the English Statutes, many changes in the laws have been made, which have in turn, been adopted by England and other countries, until now the patent laws of most of the nations are modelled more or less directly upon those of the United States. The adoption of the search system for novelty of invention originated in the United States and was adopted by Great Britain, Germany and other nations.

It must be admitted that the patent laws of the United States, as they stand at present, have done more for the development of the nation than can be readily calculated. The advancement along scientific lines, and the commercial progress of the nation are directly traceable to the patent system. When one stops to consider the myriad of inventions which have benefited mankind, all of which were fostered and encouraged under the United States Patent Laws, one ventures upon a wide field of speculation. The telephone, the sewing machine, the cotton gin, the locomotive, the trolley cars, electric lines, electric devices and appliances, the telegraph, the automobile, the wireless, the flying machines, and the submarines, agricultural machinery and appliances, all have helped to build the nation's commercial supremacy. Inventions

have helped those who dwell in cities and those who dwell in the country. Farmers own automobiles; trolley lines pass through their very farms, bringing widely scattered communities into close touch; the telephone enables the farmer to keep in touch with the market values, and the automobile enables him to haul his product to a profitable market, and the wireless to message at long distance by air currents, and flying machines to carry the mails, etc. More intelligence, more knowledge, more wealth have resulted from inventions, and the end is nowhere in sight, as the vast number of patents which are applied for each year ably testifies. There is practically no limit to the benefits to mankind which can be traced to the United States Patent System.

As before stated, Doctor Thornton, in 1821, assumed the title of Superintendent of Patents, and continued in office as such until 1828, the year of his death. The office of Superintendent of Patents was specifically provided for by Congress in 1830, in the act making appropriations for salaries for the Department of State.

By the Act of July 4, 1836, the office of Superintendent of Patents was abolished, and in lieu thereof the Office of Commissioner of Patents was created. Mr. Henry L. Ellsworth became the first Commissioner, continuing in office until May 9, 1849. By the Act of March 3, 1849, the Department of the Interior was created, to which was added, with other government bureaus and offices, the Patent Office.

The late Honorable Thomas Ewing, Sr., was the first Secretary of the Interior (March 8, 1849, to August 15, 1850). His son, the late Thomas Ewing, 2d, was a distinguished lawyer, statesman and soldier. He served gallantly throughout the Civil War in the Union Army and rose to the grade of a Major-General. His son,

Thomas Ewing, 3d, a prominent Patent Attorney of New York, filled the office of Commissioner of Patents from July 10, 1913, to August 15, 1917. He was succeeded as Commissioner of Patents by the Honorable James T. Newton, of Georgia, August 30, 1917, the present Commissioner, who for a number of years was in the Examining Corps of the office and later Assistant Commissioner of Patents.

In July, 1836, the present system of consecutively numbering patents was adopted, and up to and including February 27, 1849, 6,151 patents were granted. Patent number 6,152 was granted March 10, 1849. Prior to July, 1836, 9,957 numbered patents were issued. The first patent granted bore date of July 31, 1790, and was issued to Samuel Hopkins for his invention of a "baking pot and pearl ashes." From that date to December 31, 1917, the Patent Office has issued 1,077,760 patents, reissued patents and trade mark designs.

In July, 1800, the Department of State removed from Philadelphia to Washington. The records, etc., of the Department were landed on Lear's Wharf, at the foot of G Street. There was no building immediately ready to receive them, but in August the Department found a home in what was locally known as the "Seven Buildings," on Pennsylvania Avenue between 19th and 20th Streets, N.W.

In 1810 Congress authorized "the purchase of a building for the accommodation of the general post-office, and of the office of the keeper of the patents." The building purchased was known as Blodgett's Hotel, and stood on the site now occupied by the south front of the old General Post Office Department, E between 7th and 8th Streets, N.W. Into the east end of this building Commissioner Thornton moved the records, models, etc., of the office.

On June 15, 1836, Mr. Ruggles, as one of a committee appointed on his motion for the purpose, reported a bill "providing for the construction of a building for the accommodation of the Patent Office." On June 28, the bill then being on its last reading, a motion was made to recommit with instructions to report a bill providing for the purchase of the "old brick Capitol," fronting Capitol Square, First and A Streets, N.E. The motion was lost, and the bill as read passed the Senate, appropriating \$108,000, out of the "patent Fund" for the erection of a suitable building of brick and wood. A House amendment changed these materials to cut stone facing for the exterior walls, and also provided for fireproofing the structure within. The bill as amended became a law July 4, 1836. Late in that month the erection of the building began, under the supervision of Robert Mills, the architect and designer thereof. It was the present south front of the Patent Office Building, excluding the south ends of the east and west wings. The building was 270 feet long and 69 feet wide. The basement (what is now the first or ground floor) was to be used for storage, fuel, furnaces, etc., the first or portico floor for office rooms, and the second floor was to be one large hall, with galleries on either side, and to have a vaulted roof. This hall was designed to be used as a national gallery of the industrial arts and manufactures, and for the exhibition of models of patented and unpatented inventions. The body of the building, the center south front, is of Virginia sandstone and was afterward painted white.

On December 15, 1836, a fire destroyed the building where the Patent Office was then located, and all the models and records and the library, with the exception of one book, Volume VI of the Repertory of Arts and

Manufactures (now in the Scientific Library of the Office) which an employee of the office happened to have taken to his home before the fire. Among the records destroyed was a folio containing drawings of Fulton's first steamboat, made by his own hands.

On December 19, Mr. Ruggles asked that a committee be appointed "to report the extent of the loss sustained by the burning of the Patent Office." This committee made a report, and also at the same time submitted a bill which became the act of March 3, 1837, and in which every provision was made to restore the specifications, drawings, and models, by obtaining duplicates of them from the persons in whose possession the originals were. An appropriation of \$100,000 was made for this purpose. The whole number of models destroyed was about seven thousand, and the records covered about ten thousand inventions. It was not until 1849 that the work of the restorations was discontinued, and out of the amount allowed for the purpose \$88,237.32 was expended.

During the erection of the Patent Office Building the Commissioner found temporary quarters in the City Hall, now the United States Court House for the District of Columbia. In the spring of 1840, the south wing of the Patent Office Building was completed and the office moved into its own home, upon the building of which the sum of \$422,011.65 was expended. The Commissioner in his annual report for 1840 said: "The Patented models are classified and exhibited in suitable glass cases. The National Gallery is ready for the exhibition of models and specimens. I am happy to say that the mechanics and manufacturers are improving the opportunity to present the choicest contributions, and from the encouragement given no doubt is entertained that the hall, considered by some so spacious,

will, in a short time, be entirely filled, presenting a display of national skill and ingenuity not surpassed by any exhibition in the world."

By the Act of March 3, 1849, establishing the Interior Department, the Patent Office was attached thereto. This same act appropriated \$50,000 out of the patent fund to begin the east or Seventh Street wing. It was completed in 1852, and cost \$600,000, \$250,000 of which was taken from the revenues of the office. As soon as the wing was ready for occupancy, the Interior Department took possession.

By an act approved August 31, 1852, a librarian at \$1,200 was provided for the office. This act also appropriated \$150,000 to begin the erection of the west or Ninth Street wing. Plans for the entire building as it now stands were prepared in this year. The west wing was completed and occupied in 1856, and cost \$750,000. In the same year the work was begun upon the north or G Street wing.

In 1867 the north or G Street wing of the present Patent Office Building was finished at a cost of \$575,000. The entire cost of the building was \$2,347,011.65. It speaks for itself. It is one of the handsomest, most massive public structures in the world, and would be a credit to any age or people. The Superintendent and Architect of the three wings, constructed as above, was Thomas U. Walter, the then Architect of the U. S. Capitol Building. The 7th, 9th and G Street wings are of white marble.

September 24, 1877, a second destructive fire occurred at the Patent Office, entirely destroying the Model Halls of the north and west wings of the building, causing a loss of more than a hundred thousand models of American invention and serious damage to nearly one hundred thousand more models on exhibi-

tion in the two Model Halls. The cost of reconstructing the Patent Office, damaged or partially destroyed by the fire of September 24, 1877, was \$606,674.46.

When the city of Washington was laid out the square on which the Patent Office Building is located, known as Reservation No. 8, F to G and 7th to 9th Streets, N.W., was appropriated and reserved as National Church Square, as noted on King's Plats, Surveyor's Office, District of Columbia, recorded therein as Reservation No. 8.

The Act of July 4, 1836, authorized the construction of the south wing of the Patent Office on this Reservation, and legislation thereafter authorized the construction thereon of the East, West and North additions to the original building.

From the Department of the Interior several of its former bureaus have grown into Departments. First to lay the foundation of the Department of Agriculture was the Bureau of Agriculture; for several years prior to, and after the Civil War, it was located in the rooms on the first floor, south wing of the Patent Office Building. It was under the administrative control and supervision of Hon. Isaac Newton, the first Commissioner of Agriculture.

Second, the Census Bureau, which a few years since was transferred to and made a part of the Department of Commerce.

Third, the Bureau of Labor, afterwards made an independent bureau, and later transferred to the Department of Commerce and Labor when that Department was created.

For many years the Patent Office Building housed the Patent Office, Pension Office, General Land Office, Indian Office, Census Office, Agriculture Bureau, and Office of the Secretary of the Interior. Today owing

to its great expansion the Patent Office is the sole occupant of the entire building.

The receipts in the Patent Office for the year 1917, amounted	
to,	\$2,258,377.10
The cost of maintenance for the same period was,	2,048,173.16
Leaving a surplus of,	\$ 210,203.94

The new Interior Department Building was authorized by the Act of March 4, 1913. It was constructed under the supervision and direction of the supervising architect of the United States Treasury. The building is of a pleasing style of architecture, constructed of steel and hollow tile, with exterior walls of brick faced with limestone, and is fireproof. It is covered with a promenade tile roof, giving a recreation space of about two acres. The building has a frontage on E and F Streets of 401 feet 10 inches, and on 18th and 19th Streets of 392 feet 2 inches. It is eight stories high, and its shape is the letter "E."

The total area of the basement is 104,340 square feet; that of the first story a little more than 106,000 square feet, and the upper stories have approximately 75,000 square feet each, making a total floor space of upwards of 685,000 square feet or 16 acres. The site on which the building is located is open and the plan of construction followed has been such as to provide ample air space adjacent to practically all the rooms. The basement is surrounded by areaways, and there are two courts between the wings.

The west court of the building is used as a library for the Geological Survey and has a capacity of 250,000 volumes in addition to cases for maps and offices for librarian, clerks, etc.

In the east court is an auditorium, equipped with 319 leather-covered opera chairs, with stage, retiring

rooms, operating rooms for motion pictures, etc. At the south of the auditorium is the press room where the map printing of the Geological Survey is executed. On the top of this wing is the largest photographic laboratory in the United States, complete with dark rooms, etc.

Special rooms are provided for the chemical, analytical, physical, petroleum, and mineralogical laboratories of the several bureaus in the building.

There are 1,500 room-units in the building, 14 feet by 20 feet each, making about 1,280 rooms, and for daytime lighting there are about 4,244 windows. The building contains 52 toilets and 830 lavatories, each supplied with hot and cold water, and there are 96 drinking water fountains in the corridors in addition to lavatory fountains. The building is heated by direct radiation; and power and light are supplied from the Capitol power, heating and lighting station. The appropriations for the building and approaches, aggregated \$3,192,000.

Contracts for the complete building, including mechanical equipment, elevators, and lighting fixtures, were made in July, 1913. This Department commenced moving into the building on April 18, 1917, and the moving of the various bureaus and offices was substantially completed on June 23, 1917.

The working force of the Patent Office from 1790 to 1802 consisted of three persons. From that time to the present it has gradually increased and now numbers, approximately, 1,000 employees, classified as examiners in chief, principal examiners, assistant examiners, clerks, copyists, messengers and laborers.

In the early part of 1880 the exhibits of models of inventions were removed from the model halls of the Patent Office and stored in boxes in the basement of

the building. The reason for this was that the office had decided to do away with the regulation requiring models to be filed with applications for patents, except in special cases when necessary to have a model, and the substitution, in lieu thereof, of complete detailed drawings of the proposed invention, together with specifications in full concerning the same. The model halls were then rearranged for the use of a part of the office force, and for the location of the Patent Office Scientific Library.

It may not be known to the general public that the Patent Office is a self-sustaining bureau. Its annual receipts more than equal the cost of maintenance by an average approximating a surplus of \$100,000.

In its records, among the many noted inventors, may be recalled the names of:

Alexander Graham Bell, inventor of the telephone, etc.,

Samuel F. Morse, inventor of the telegraph, etc.,

Samuel P. Langley, inventor of the flying machine,

Thomas A. Edison, inventor of many electrical devices,

Cyrus H. McCormick, inventor of the reaping machine,

which has done so much for the cause of agriculture,
Elias Howe, inventor of the sewing machine, afterwards perfected by the Singer patents,

The Hoe Company, inventor of the Rotary Printing Press,

Robert Fulton, inventor and introducer of steam navigation, and the first steam warship and submarine torpedo,

John Ericsson, inventor of caloric engines, the screw propeller and turret war ships, one of which, the "Monitor," distinguished itself in the American Civil War and inaugurated a new era in naval warfare,

J. P. Holland, inventor of the electric submarine boat, the first of its kind being the "Nautilus."

Marconi was not the first discoverer or inventor of wireless telegraph. It is a matter of record that Prof. Silas L. Loomis, of Washington, D. C., was granted the first patent in 1878, but never was able, on account of lack of funds, to perfect his invention, and because, at that time, the public was skeptical regarding its success.

There have been many American inventors of heavy battery and field guns, and rapid firing, repeating machine guns, rifles, carbines, revolvers, and other kinds of ordnance, among whom might, in part, be mentioned Dahlgren, Gathman, Hotchkiss, Maxim, Colt, Remington and Rodman.